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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,311	02/14/2002	Mark Thomas Johnson	NL010090	8934

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EXAMINER

NGUYEN, KEVIN M

ART UNIT PAPER NUMBER

2674

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/075,311	Applicant(s) JOHNSON ET AL.	
	Examiner Kevin M. Nguyen	Art Unit 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This office action is made in response to applicant's argument filed on 04/11/2005. Claims 1-9 are original. Claims 1-9 are currently pending in the application. An action follows below:

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/075,311, filed on 14 February 2002.

Drawings

4. The drawings were filed on 14 February 2002. These drawings are accepted.

Response to Argument

5. Applicant's arguments see page 4 and 5, filed 11/05/2005, with respect to claims 1-9 have been fully considered, but they are not persuasive. The rejection of claims 1-9 are maintained.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishihara (previously cited, EU 0588019 A2) in view of Bae et al (previously cited, US 5,247,194).

8. As to claim 1 (original), Ishihara teaches a display device comprising:

- a. Fig. 13 discloses a liquid crystal capacitor 7 (a pixel, fig. 13), a TFT 3 (a switching, fig. 13), an n-th scanning line 1' (selection electrodes), and image signal line 2 (data electrodes) (page 9, line 57 through page 10, line 2).
- b. Fig. 11 discloses a scanning driving circuit 9 (a first driver), and an image driving circuit 10 (a second driver) (page 9, lines 36-37).
- c. Fig. 3 discloses a backlight 21, an inverter 22, a transformer 23, a fan 24, a power source 25 for the backlight 21, a diffuser 26 which are defined a pulse backlight system as claimed (page 6, lines 1-3).

Accordingly, Ishihara teaches all of the claimed limitation of claim 1, except for "increase the switching rate of pixels in the sequence of selecting the pixels during operation."

However, Bae et al teaches thin film transistor with an increased switching rate according to the driving ability of a plurality of pixels (col. 6, lines 6-13).

Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention to substitute each Ishihara's thin film transistor for thin film transistor with an increased switching rate according to the driving ability of a plurality of pixels, in view of the teaching in the Bae's reference, because this would provide a thin film transistor having an improved driving ability, while fabricating a plurality of thin film

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transistors are easy to be carried out and the on-currents are more improve as taught by Bae (col. 2, lines 7-21).

9. As to claim 2 (original), Ishihara teaches V_{sig} is display data itself and varies between a maximum and minimum arbitrarily (page 8, line 41). Figs. 7e and 7f depict voltage changes at the pixel electrode of the point A in fig. 6 (page 8, lines 42). Bae et al teaches thin film transistor with an increased switching rate according to the driving ability of a plurality of pixels (col. 6, lines 6-13).

Therefore, the modified teaching of Ishihara's reference in view of the modified teaching of Bae's reference provide the "substantial evidence" and established a prima facie case to produce and result the claimed limitations of claim 2.

10. As to claim 3 (original), Ishihara teaches influence of the driving voltages appears at a pixel electrode disposed at a point A through the parasitic capacitors and the capacitors formulated intentionally (page 10, lines 7-9). Bae et al teaches thin film transistor with an increased switching rate according to the driving ability of a plurality of pixels (col. 6, lines 6-13).

Therefore, the modified teaching of Ishihara's reference in view of the modified teaching of Bae's reference provide the "substantial evidence" and established a prima facie case to produce and result the claimed limitations of claim 3.

11. As to claim 4 (original), Ishihara teaches as external driving voltage applied to the electrodes of the elements, a scanning signal $V_g(n)$ is supplied to the n-th scanning signal line 1'.... Influence of the driving voltages appears at a pixel electrode disposed

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at a point A through the parasitic capacitors and the capacitors formulated intentionally (page 10, lines 4-9).

12. As to claims 5, 6, 8, and 9 (original), Ishihara teaches the area of the storage capacitor 63 is changed from the upper portion of the liquid crystal panel towards the lower portion of the liquid crystal panel such that the storage capacitor has a capacity fine times a liquid crystal capacity and a capacity equal to the liquid crystal capacity at the upper portion and the lower portion of the liquid crystal panel, respectively (see fig. 17, page 10, lines 35-39).

Therefore, "the area of the storage capacitor 63 is changed from the upper portion of the liquid crystal panel towards the lower portion of the liquid crystal panel" provide the "substantial evidence" and established a prima facie case to produce and result the claimed limitation "the capacitive decreases in the sequence".

"The area of the storage capacitor 63 is changed from the lower portion of the liquid crystal panel towards the upper portion of the liquid crystal panel" provide the "substantial evidence" and established a prima facie case to produce and result the claimed limitation "the capacitive increases in the sequence".

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishihara in view of Bae et al as applied to claim 1 above, and further in view of Bonnett et al (previously cited).

14. As to claim 7 (original), Ishihara teaches all of the claimed limitations of claim 1, except for the temperature increases in the direction of the sequence of selecting the pixels.

However, Bonnett teaches a liquid crystal display device comprising the graph 14 illustrates the effect of increasing temperature on the pixels in the odd frames whereas the graph 15 illustrates the effect of increasing temperature on the pixels in the even frames (fig. 4, col. 5, lines 25-28).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide Ishihara's LCD device including increasing temperature on the pixels, in view of the teaching in the Bonnett's reference, because this would compensate for change in gray level with temperature as taught by Bonnett (col. 6, lines 42-45).

Response to Arguments

15. Applicant's arguments filed 11/04/2005 have been fully considered but they are not persuasive.

16. In response to applicant's argument that independent claim 1 recites "increasing the switching rate of pixels in the sequence of selecting the pixels during operation."

Examiner is not convinced by Applicant's argument. As stated *supra* with respect to claim 1, Examiner finds that the combination of Ishihara teaches the structure of the display device comprising at least one pixel 7, at least one switching element 3, the data driver 10, and the gate driver 9, a pulsed backlight 21, as substitute the switching element 3 by Bae et al, teach the claim 1 limitation of "thin film transistor with an increased switching rate according to the driving ability of a plurality of pixels" (col. 6, lines 6-13) to achieve the benefit the thin film transistor having an improved driving

ability, while fabricating a plurality of thin film transistors are easy to be carried out and the on-currents are more improve as taught by Bae (col. 2, lines 7-21).

Moreover, where the claimed differences involve substitution of interchangeable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem such substitution has been judicially determined to have been obvious. See In re Ruff, 118 USPQ 343 (CCPA 1958).

17. In response to applicant's argument that dependent claim 7 recites "increasing the switching rate of pixels in the sequence of selecting the pixels by generating a temperature gradient during operation, at which the temperature increase in the direction of the sequence of selecting the pixels."

Examiner is not convinced by Applicant's argument. As stated *supra* with respect to claim 7, Examiner finds that the combination of Ishihara teaches the structure of the display device with Bae et al teach "thin film transistor with an increased switching rate according to the driving ability of a plurality of pixels" (col. 6, lines 6-13), as modified by Bonnett et al, teach the claim 7 limitation of increasing temperature on the pixels by control arrangement for selectively switching each of the plurality of pixels to the first optical state in a first time period and to the second optical state in a second time period consecutive with the first time period (col. 7, lines 43-47).

For these reasons, the rejections based on Ishihara, Bae et al, and Bennett et al have been maintained.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the Patent Application Information Retrieval system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Nguyen
Patent Examiner
Art Unit 2674

KMN
June 14, 2005


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PRIMARY EXAMINER